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A SUMMARY OF THE VERTEBRATE FAUNA OF BARROW ISLAND, W.A.

BY W. H. BUTLER, Wanneroo

INTRODUCTION

The faunal lists presented in this artiele are the results of several collecting visits I have made to Barrow Island since 1964. These were sponsored by various bodies, ineluding the Archbold Expeditions of the American Museum of Natural History, the Western Australian Museum, the Explorers Club of New York, and the West Australian Petroleum Pty. Limited (WAPET). Aeeounts of previous expeditions to Barrow Island were summarised by Serventy and Marshall (1964), in which paper the relevant referenees may be found.

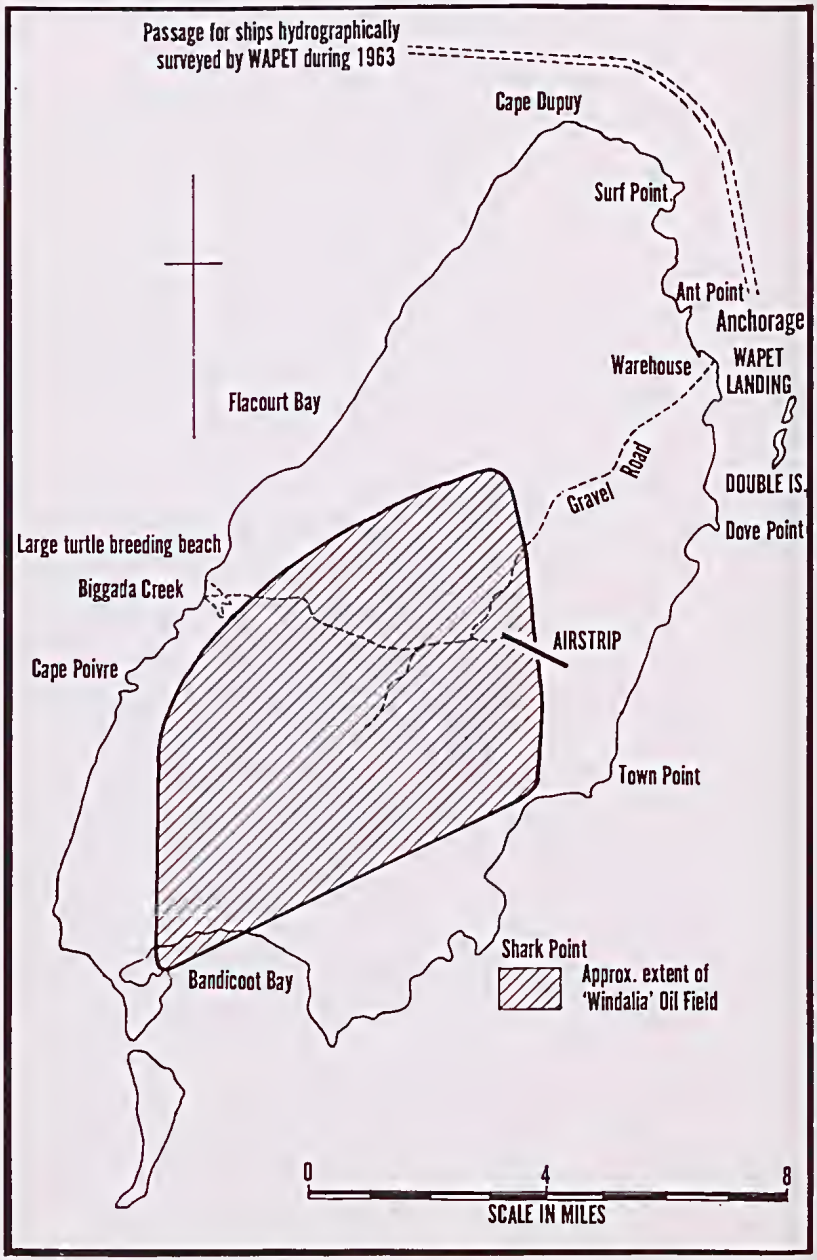
It will be seen that in the present eontribution six, and possibly seven spceies of terrestrial native mammals have been added to those previously known from the island, thus further substantiating Serventy and Marshall's comment that "Barrow Island is possibly the most mammal-rich island off the Western Australian coast". There is now ample warrant, I believe, to eliminate the qualification "possibly" from this statement. Although a good series of skins and skeletons as well as spirit material now exists in the collections of the W.A. Museum and the American Museum of Natural History, no deseriptions have yet been published to determine the precise taxonomic status of the island populations. Reptiles were not collected by previous visitors and the list of 29 speeies is the first published for this island.

Early in 1964, while I was under joint contract to the Archbold Expeditions of the American Museum of Natural History and the Western Australian Museum, an announcement was made that WAPET, active for some ycars in oil exploration on the mainland, was about to eommence drilling operations on Barrow Island This provided an exeellent opportunity to get there at low cost as the eompany desired biologieal information about the island and, when approaehes to it were made, it proved extremely co-operative. This, my first survey of the island, lasted from May 19 to June 18 that year. I worked with a short wheel base Landrover and operated with traps, snares, nets and guns, examining the whole of the island. The facilities thus provided for me were much better than those available to any of the earlier natural history visitors, who travelled about on foot and were necessarily restricted to the vicinity of the landing place—at the north-eastern end of Barrow Island, off Double Island. I was again on the island under the auspiees of these two museums between April 25 and 29, 1965. Later the Explorers Club of New York provided a further grant for field work, following reports of widespread damage to the fauna as the result of oil exploratory work. These, fortunately, proved unfounded, as I learned on a visit between December 18, 1966, and January 16, 1967. Another visit, sponsored by WAPET, was between November 15 and 24, 1969. My latest visits, Mareh 31 to April 3 and May 6 to 11, 1970, also on behalf of WAPET, were to loeate for transplanting into the camp environs suitable island flora.

I recognise the following zones on Barrow Island:

(1) The Fore-Dunes.

These are the aeolian dunes of white sand colonised by the strand plants, *Spinifex longifolius, Salsola kali* and *Ipomoea pes-capri.* Other



BARROW ISLAND, based on a WAPET map.

plants include *Frankenia, Pluchea* and *Teplirosia rosea* and wind-pruned thickets of *Acacia coriacea* (Necklace Acacia). On the lee slopes of these dunes *Triodia augusta* is established and continues inland throughout the whole of the island on the deeper soils.

(2) Red Sand Dunes.

Their colour alone renders these distinct from the fore-dunes. They occur usually inland of the fore-dunes and mostly to the south and east. The dominant vegetation is a uniform cover of *Triodia augusta* with occasional *Acacia coriacea.*

(3) Limestone Ridges

These exposures occupy the largest part of the island. *Triodia wiseana* forms the major part of the plant cover supplemented by scattered *Ficus, Pittosporum* and *Triodia augusta.* Thickets of *Erythrina vespertilio* occur in two places.

(4) Clay Pans.

Occur mainly at the south-west corner, with one at the north. Their surfaces are covered by, mainly, two species of grasses, *Paspalidium.*

(5) Creek Beds.

These are grown with *Triodia augusta* but good stands of *Hakea lorea, Petalostyles, Acacia bivenosa* and *Gossypium robinsonii* also occur.

(6) Mangrove Thickets

These are not uncommon at the mouths of tidal creeks, but no continuous or dense stands exist.

In one place, at the north-west of the island, I found a stand of *Eucalyptus patellaris* which is apparently growing on a soakage over an east-west fault line across the area. Geologists reported good water at 10ft. depth here but only where the eucalypt was growing.

DISTURBANCE OF THE ENVIRONMENT BY THE OIL COMPANY

Large scale development work was begun in 1964 and 475 oil wells have now been drilled, with 50 more to be completed during the current programme. These, with their attendant roads, gravel pits, camp sites and other ancillary activities, would eventually directly disturb about one-third of the total land area (which comprises approximately 100 square miles). At first sight this would be a very serious threat to the fauna. However, this does not appear the case at present and, on the whole, the fauna seems to be increasing rather than decreasing—with two notable exceptions, the kangaroo species *Macropus robustus* and *Petrogale penicillata.*

The following factors are significant in relation to the welfare or otherwise of the fauna:

(1). The road and well development are not simultaneous. Thus it is possible for the larger animals at least to move overnight to the unworked areas. The grid system of working also ensures that untouched areas are immediately available. The whole development generally takes up one-third of the island but the soil area actually disturbed is reckoned to be only some 3,000 acres, representing a ratio of 1 : 18 of developed to undeveloped (undisturbed) ground. However, the secondary or indirect disturbance should be considered also, especially the peripheral effect of penetration of disturbance from the road edges. Taking all this into consideration, it is reasonable to assume that at least half of the island, including samples of all the habitats mentioned earlier, would remain undisturbed.

(2). Some of the disturbance is, in many cases, of a temporary nature, i.e. seismic-line roads constructed in 1963 have in many cases not been used since and are regenerating, although with a somewhat different flora to that of the climax vegetation. The soil disturbance, gully damming and run-off factors on the roads, all contribute to the regrowth on disturbed areas enjoying a higher moisture than that received normally by the old climax vegetation. This might be related to the apparent increase in

animal numbers evident in some species. If animals come to feed along the roadsides they would be more conspicuous to observers than before. If the increase in numbers is real, the extra food available from this source, along disturbed ground, might be significant.

(3). The direct intervention of man is important. WAPET has enforced a total and watchful protection of the fauna and flora. Fire-arms, cats and dogs are banned from the island, and any surreptitious importation of guns is punishable by instant dismissal. Provision of extra food supplies, such as the lawns of camps and the rubbish dump food supplies, directly benefit considerable numbers of individuals of different species. On the other hand, road traffic at night inevitably causes casualties, in particular among *Lagorchestes, Trichosurus* and *Isoodon,* and, in lesser degree, among *Bettongia* and *Zyzomys.* I found no evidence of *Macropus* road casualties.

In my report to the Explorers' Club of New York, I made the following recommendations:

(a) That West Australian Petroleum Pty. Limited and its officers be congratulated on their present attitude to fauna conservation and the company be asked to carry on this programme as far as is possible and also in other areas under their control.

(b) That any scientist visiting the island should record and report the levels of vertebrate fauna to the best of his ability and also make a collection of specified numbers, to literally "farm" the reserve for scientific needs.

(c) That the possibility of live capture of Barrow Island species be considered for shipment to other reserves and areas, where the same species previously occurred, in an endeavour to re-establish the species, e.g. *Lagorchestes conspicillatus, Isoodon auratus* and *Bettongia lesueur* to the Montebello Islands where they occurred until recently. The placid nature of the island fauna indicates they may be good breeding stock for zoos to ensure species perpetuation and conservation.

MAMMALS

Family DASYURIDAE

Antechinus macdonnellensis. Fat-tailed Marsupial Mouse

Although nowhere frequent, this species appears to favour the white fore-dune habitat, among *Spinifex longifolius* and *Acacia coriacea.* I collected three specimens. One was taken by spotlighting on a high barren limestone ridge in the island centre. The other two specimens were both obtained in the fore-dune *Acacia coriacea* thickets. One of the oil company's workmen described this species, with its "foxlike face," from a gravel pit near the airstrip about a week before my arrival in April, 1965. On the adjacent mainland, the species lives in rocks or termitaria, but no trace of it was found in the island termitaria. As the species is rarely seen no estimate of its numbers can be given.

Family PERAMELIDAE

Isoodon auratus. Barrow Island Bandicoot

This is the most ubiquitous mammal on the island, appearing at dusk and being evident until sunrise. Very inquisitive and active, it is a nuisance to the collector because of its constant springing of traps. One night, at 1700 hours, I set 6 cat traps (the live variety) and at 1900 hours I released from them 6 *Isoodon.* At 1930 hours, I released another 6 and similarly at 2000, 2030, 2100 and 2130 hours. At 2200 hours only 5 were released but 6 again at 2230 hours. In the morning I released 6 *Isoodon.* Thus, the traps had taken in one night 53 *Isoodon,* of which none would have been repeats because the operation was attempted to thin-out their numbers around the camp and the captured animals were released at a rubbish dump two miles away. From rubbish dump counts and camp counts, there may be 1,000+ of this species on the island.

They have learned to appreciate soft drinks and beer from cans and should an opened can be placed on the ground they will put the forepaws on the rim and kick the base of the can until it topples, when the contents are drunk. This kicking is very characteristic of their feeding behaviour, no matter what the food item. I have seen them kick steak, dead bodies, bread, porridge and even milk in a saucer. Generally the animal is smaller and much more reddish in colour than mainland *I. auratus,* being a distinctive subspecies, *I. a. barrowensis.*

Family PHALANGERIDAE

Trichosurus arnhemensis. Northern Brush-tailed Possum

Not previously recorded on the island.

Next to *Isoodon,* all individuals of the species appear most adapted to the presence of man. It frequents the camps and rubbish dumps and continually causes damage to stores and supplies. On the rubbish tip, where food scraps were dumped, as many as 70 possums would feed in a small area, packed so closely together that nothing was visible between the individuals. They are particularly fond of sweet things and numerous tragedies occurred in the earlier days of development when their search for jam led them into an open jam tin. The lid would lock under the chin and the animal would die a miserable death of thirst and hunger. Generally gentle, all examples, with occasional exceptions, allowed themselves to be handled and examined without undue struggling. Like *Isoodon,* all specimens examined were very fat, with layers of up to 35 mm. of subcutaneous fat.

Compared with specimens I have collected in Northern Australia the Barrow Island Possum is a very distinctive animal, with a short tail, short blunt head and ears and a dumpy body. It has quite a strong resemblance to the rock-haunting Ringtail, *Petropseudes dahli,* of Northern Australia. Owing to the absence of trees on Barrow Island and an arboreal life not being possible, the Possum here has become a rock-frequenting creature. I think that the Barrow Island animal is subspecifically separable.

Family MACROPODIDAE

Macropus robustus. Barrow Island Euro

This, the smallest of the Euros (*M. r. isabellinus*), is the largest land mammal on the island, standing up to 4 ft. 6 in. in height and weighing up to 50 lb. It is also the most adversely affected by the developmental programme.

The animals observed and collected were in poor condition being bony with little fat and heavily infested with tick. No pouched young were observed, but animals at heel were seen. The Euros were nowhere numerous and my sightings were much less frequent than those implied in the published records of earlier naturalists. I think the population has definitely decreased between my first visit in 1964 and the last in 1970, and I estimate the present population as 200+ animals.

These Euros tend to be solitary in habit, but, in the hot weather, congregate into family groups of 3 or 4. Extremely territorial, on the island they readily fight any intruder of the same species and are vicious in their attacks on Hare-Wallabies. A captive, a large buck, obviously regarded the camp lawn as his territory and made constant efforts to kick all the oilmen who came near. It was eventually sent to the University of Western Australia where he established a pen territory and continued his aggressive behaviour to human visitors, especially towards the female staff.

Lagorchestes conspicillatus. Spectacled Hare-Wallaby

This is an animal which appears to have definitely benefitted from the increased regrowth vegetation. My population estimate in 1964 was 200+ individuals; that in 1966, 600+, but by 1969 the figure would be more like 800+. These numbers are based on actual counts over given areas. All collected animals were fat and healthy and groups of up to 9 animals were observed. It has been suggested that the increased

sightings are due to the more frequent roadside feedings and the provision of roads giving greater access to the island.

Despite the apparently healthy population situation, suggested above, this species is really quite vulnerable as it needs the tall *Triodia* clumps for shelter. These only grow in the gullies, which are at present much used by the oil company for gravel pits.

When captured, Hare-Wallabies adopt a very fierce mien and growl while attempting to bite the captor. Upon release, however, they hop away only 3 or 4 yards and resume feeding. A favourite feeding spot is the WAPET Base Camp lawns and I have counted 37 individuals feeding simultaneously on this area of about 100 yards in length by a width of 20 feet.

Petrogale penicillata. Rock Wallaby

These were only seen on the cliffs on the western side of the island, and, unlike all the other large local fauna, appear to be very wary and shy. I estimate there are 500+ individuals in the multiple cliff colonies which extend over some 8 miles of coast and in places go two miles inland.

Although the animals were in good condition I have never seen them when they were not apparently going out of moult. Although shy, they are very inquisitive and should one sit quietly near colony sites they will suddenly appear. So unobtrusive is their appearance that an observer is often not aware of their presence until he moves when the sudden flurry of escape becomes apparent. The threat posture of the males is quite distinctive: forepaws and tail support the weight as the hind feet are brought forward and down with a loud thump. During this time the head is held erect. When this is repeated several times, the undulating motion of the animal coupled with the belligerent stare is arresting. However, the slightest noise from the observer will send the animal bounding up the almost sheer rock faces. The island form appears to be *P. p. lateralis*.

Bettongia lesueur. Lesueur's Rat-Kangaroo (Boodie Rat)

Not previously recorded on the island.

This is probably the animal attributed tentatively but incorrectly to the species *Lagostrophus fasciatus* by Whitlock (1918), based on remains found by him in a sea-eagle's nest. I estimate the population, based on sightings, to be 400+.

These animals dig for roots or grubs, but do not appear to make burrows as mainland individuals do, although captive specimens in W.A. University yards burrowed readily. Of all the mammal residents on the island, I found these Boodies the most unattractive. Not so much in their appearance, although the short blunt head is contributory, but in the stealthy way individuals would move up to a Possum, or other similar-sized animal, and then without any apparent reason or provocation proceed to jump on it and bite and kick it. It is apparently an expression of territorial aggression.

The island form is very different in appearance from the form occurring on Bernier and Dorre Islands. It is similar to specimens collected at Roebuck Bay and is possibly not *B. lesueur*.

Family EMBALLONURIDAE

Taphozous georgianus. Sheath-tailed Bat

Not previously recorded on the island.

These bats occur in some numbers in caves on the west side of the island. They tend to form small groups of 3 or 4 animals and, even when they are found in larger numbers, as in the large cave near the "Valley of the Giants" (*Eucalyptus patellaris*) they still stay in these small clusters. It is quite possible they are nomadic or regular visitors, but I have found them *in situ* on each visit.

Family VESPERTILIONIDAE

Eptesicus pumilus. Little Bat

Not previously recorded on the island

This bat is probably resident since females were breeding and had

well-developed foetuses on January 10, 1967. In one case, a female was carrying two young at the breast. They occur in caves and ledges, but some specimens were shot at Biggada Creek, hawking at night.

The probable population strength is unknown and they certainly do not occur in the big numbers characteristic of the mainland. I have found four colonies, with 7 individuals in three and about 30 in the fourth.

Family MURIDAE

Mus musculus. House Mouse

Not previously recorded from the island.

In 1965 two specimens of this introduced rodent were taken by me and an intensive trapping and poisoning campaign was immediately instituted. Apparently, this successfully eradicated it as there have been no reports of its presence subsequently.

Unidentified Mouse

In 1964, a single male mouse, similar in size and colouring to a *Mus musculus* was collected by me on the island in the Fore-dune Zone, opposite Double Island. It did not have the notched incisors of *M. musculus* and it has been sent to Mr. J. Mahoney of Sydney University for identification.

It was a very gentle animal, unlike the usual reactions of *M. musculus*. When I took it from the pit trap, it squealed softly but otherwise made no struggle when I held it.

Rattus rattus. Black Rat

Although I have not collected this introduced species on Barrow Island, it occurs on the Montebello Islands and on Double Island. The latter is separated from Barrow Island by about 100 yards of water at low tide. The Double Island animals are large and grey with very coarse guard hairs, whereas those on the Montebellos are much darker and lack the coarse hairs. Whitlock (1919) recorded the "common house-rat" on Double Island.

Pseudomys nanus. Barrow Island Mouse

Not found commonly by me though previous reports suggest it was very prevalent. Specimens were collected by spotlight on the camp lawn and the others were flushed from *Triodia* in the daytime. The present population is low, I think, but in good seasons this species, like all the murids, might build up very quickly. A very gentle rodent I found not at all perturbed by handling. The Barrow Island subspecies is *P. n. fercularinus*.

Zyzomys argurus. Common Rock Rat.

Not previously recorded.

During my surveys, this delicate rat was the most common murid on the island, and is preyed on by *Bettongia*, *Isoodon* and *Trichosurus*, as well as the reptiles *Pseudechis* and *Varanus*. Each visit yields more sightings than the previous ones. My latest population estimate is 1,000+, but murid population fluctuations could alter this figure in a few months. They are sometimes active in the late afternoon in sheltered areas of rock or *Triodia*. The species is plentiful on the dry mainland areas from the Pilbara to the Kimberley Division, and also occurs in the much wetter north Kimberley where I have seen it take to water quite readily.

Hydromys chrysogaster. Water Rat

Not previously recorded on the island.

This beautiful animal has only been observed by me on beaches and in the mangroves fringing the margins of tidal creeks. They take to the sea very readily and swim underwater for long distances. Two male individuals were taken when fighting on the edge of the mangroves; the others were trapped in mangroves or rocks at tide level. My estimate of

its status is that it is widespread but not plentiful. Perhaps 50+ could be found in the surrounds of the island. Traeks of the speeies were noted at Trimouille Island in the Montebello group, where, as on Barrow, it has not previously been recorded. The animals have been seen to feed on dead fish, molluses and crustaeea. The beautiful blue-grey fur is very distinetive and differentiates the subspecies *H. c. cauriuus.*

Family DUGONGIDAE

Dugong dugon. Dugong.

Not previously recorded.

The speeies was not collected, but bones and sight observations indicate oeeasional visits to these waters. It was onee mueh more common in the area according to the reports of loeal fishermen. This deeline is general along the whole of the adjoining mainland eoast. The eause is obseure as the speeies is proteeted and the predation by Aborigines no longer takes place.

Family DELPHINIDAE

Pseudorca crassidens. False Killer Whale

Not previously recorded.

I collected a eomplete skull of this killer whale on the north-east eoast.

Tursiops truncatus. Cowfish

Not previously recorded.

I eollected one eranium, a mandible and teeth of this dolphin. It is often seen in shallow waters. One group of 9, seen in November, 1969, ineluded juveniles.

REPTILES

Next to mammals, a survey of the reptiles oeeurring on the island was my main interest, as this group of animals had not previously exereised the attention of naturalists visiting the island. The identifieations and nomenelature below have been verified by Dr. G. M. Storr of the Western Australian Museum.

TURTLES

Family CHELONIIDAE

Chelonia mydas. Green Turtle

These turtles were egg-laying during eaeh of my visits and as many as 50 turtles would be seen on a beach at one time during this proeess. Speeimens examined all earried the turtle barnaele, *Chelonobia testudinaris.*

Eretmochelys imbricata. Hawksbill Turtle

Small, 2ft.-long turtles, were eommonly seen in shallow pools at low tide, or swimming in the shallows.

LIZARDS

Family GEKKONIDAE

Heteronotia bynoei (formerly in *Heteronata).*

Found in termitaria, eaves, *Triodia* elumps and under old eamp rubbish. Also on South Double Island.

Gehyra variegata.

In dead *Acacia coriacea,* eaves and termitaria. Also on Hermite Island in the Montebellos. It is possible other *Gehyra* speeies may be ineluded in this series.

Family PYGOPIDIDAE

Delma fraseri.

All my speeimens were eollected in *Triodia* where they are very plentiful.

Lialis burtoni.
Collected in *Triodia* tussoeks, mostly in dune habitats.

Family AGAMIDAE

Amphibolurus caudicinctus.
The most prevalent and obvious reptile on the island. They were of a distinetive eolour from mainland individuals.

A. barbatus minor. Bearded Dragon.
All were taken from *Acacia coriacea* areas. One was found swimming in the sea, but whether dropped by a predator or jumped to eseape a *Varanus* I do not know.

Physignathus gilberti. Water Dragon.
Seems to favour mangrove arcas, where it is very shy and wary, unlike the mainland population.
Also on Hermite Island.

Family SCINCIDAE

Omolepida branchiole gastrostigma.
All from *Triodia,* exept one found under a limestone slab.

Ctenotus pantherinus cccellifer.
Collected from *Triodia* and *Frankenia* on barren salt eroded limestone outerops on the west coast.

C. sp. (affin. *grandis).*
In *Triodia* in sand dune area.

C. grandis.
Triodia and sand areas.

C. lesueurii.
In *Triodia* and coastal *Spinifex* thiekets. Also on South Double Island.

C. wotjulum (tormerly in *Ablepharus*).
In *Triodia* on sand. Also on Trimouille Island in the Montebellos.

Sphenomorphus isolepis isolepis
Speeimens were taken under beach litter or in fore-dunes.

Lerista elegans (formerly in *Ablepharus).*
On *Triodia* in sand.

L. muelleri (formerly in *Ablepharus*).
Collected in a sand dune pit trap among *Acacia* and *Spinifex.*

L. bipes (formerly in *Rhodona*).
Taken in pit traps or by burning *Triodia.* Their traeks are extremely eommon throughout the island in sandy areas. Also on Hermite Island.

Proablepharus reginae (formerly in *Ablepharus*).
In *Triodia* on sand.

Morethia taeniopleura (formerly in *Ablepharus).*
On limestone edges of sand dunes, with *Triodia* and *Acacia* meeting.

Cryptoablepharus plagiocephalus (formerly in *Ablepharus*).
Taken from rock faee, mangrove trunks, eaves and termitaria.

Family VARANIDAE

Varanus giganteus. Perentie.
Wide-ranging over all habitats. Often seen digging for, or eating,

turtle eggs on beaches. The biggest recorded on the island weighed 38 lb. and measured 6 ft. 4 in. in length (1964). In November, 1969, 9 inch juveniles were seen. Barrow Island is the only known offshore occurrence of this species, the largest of the Australian representatives.

SNAKES

Family TYPHLOPIDAE

Typhlops diversus

One taken in 1965 in gravel and *Triodia*.

Family BOIDAE

Liasis childreni. Children's Python

Four collected, at night, on roads and in termitaria. Also on Hermite Island.

Family ELAPIDAE

Brachysoma christieanum (formerly in *Aspidomorphus*).

One collected at night on road.

Demansia psammophis reticulata. Whip Snake

Collected as a road casualty; otherwise rarely seen.

Pseudechis australis. Mulga Snake

All were collected on roads at night, except one flushed by burning *Triodia*. All were uniformly small and dark and may prove to be a definable insular race.

Family HYDROPHIIDAE

Aipysurus laevis. Sea Snake

One speared in 12 ft. of water.

BIRDS

No birds were collected but sight observations were made. A complete list of species previously recorded from Barrow Island, numbering 38, is given by Serventy and Marshall (1964). The additional 31 observed by me are marked with an asterisk in the following list.

Thus, 69 species are now known to have occurred on the island. Probably less than 20 would be breeding residents however.

The list follows the order, and uses the vernacular names, in Serventy & Whittell (1967), wherein the scientific names are to be found.

Wedge-tailed Shearwater.—Several rafts of up to 100 birds were seen in transit from island to mainland; individuals or lots up to three around the island.

Wilson Storm-Petrel.—Two seen in transit in November, 1969.

Lesser Frigate Bird*.—Two seen harrying gulls at Biggada Creek.

Australian Pelican.—30 at Bandicoot Bay.

Masked Gannet*.—c. 10 seen fishing on west coast.

Black Cormorant*.—Two with Pied Cormorants on Double Island.

Pied Cormorant.—A few singly or in pairs around the island. c. 1,000 on beach at southern tip.

Reef Heron.—Both colour phases common.

White-faced Heron*.—One freshly dead bird found on western side.

Mangrove-Heron.—One only seen, appeared to be the red-backed form.

Black-shouldered Kite*.—Two on low scrub.

Black-breasted Buzzard*.—Two seen on several occasions.

Whistling Eagle*.—One bird near landing beach feeding on dead *Lagorchestes*.

Red-backed Sea-Eagle.—One on east coast.

White-breasted Sea-Eagle.—Common.

Spotted Harrier.—At least 6 pairs on island.

Osprey.—Widespread but not plentiful.

Little Falcon*.—Recorded on my latest visit.
Kestrel.—About 30 birds seen; a very pale form.
Brown Quail*
Pied Oystercatcher.—Flocks up to 20.
Sooty Oystercatcher.—Only in pairs.
Grey Plover*
Red-capped Dotterel.—Common on all beaches.
Whimbrel.—Identified on the "ti-ti-ti" call.
Little Whimbrel*.—6 seen on mud flats.
Large Sand-Dotterel
Wood Sandpiper*
Common Sandpiper*
Little Stint
Sharp-tailed Sandpiper*
Australian Pratincole*.—On my latest visit.
Beach Stone-Curlew.
Australian Bustard*.—Recorded on my two latest visits, 14 birds in June 1970.
Silver Gull.—Ubiquitous on all beaches.
Caspian Tern
Roseate Tern*
Bridled Tern*
Lesser Noddy*.—Found dead at light on drilling rig.
Bar-shouldered Dove
Galah*.—Two at south end, in mangroves.
Little Corella*.—Two at same place as above.
Black-eared Cuckoo*
Narrow-billed Bronze Cuckoo*.—Photographed.
Boobook Owl*.—A very pale bird.
Sacred Kingfisher.—In mangroves.
Fork-tailed Swift*.—On my latest visit.
Welcome Swallow.—A few birds on west coast; very common around swimming pool.
Tree-Martin.—In mangroves.
Fairy Martin*.—A group of about 80.
Australian Pipit
Black-faced Cuckoo-Shrike*.—Four birds in *Triodia* near camp; a juvenile also seen.
White-winged Triller*.—On my latest visit.
Spinifex-bird.—Very common.
Black-and-white Wren.—Very common. Nesting on my latest visit (on young).
Brown Song-Lark*.—Noted on my latest visit and nesting (on eggs).
Yellow Silvereye.—Nest with three eggs found on June 8, 1964.
Singing Honeyeater.—Thinly spread in mangrove and *Erythrina*. Nesting on my latest visit (on eggs).
Zebra Finch
Magpie Lark*.—On my latest visit.
Masked Wood-Swallow*.—Seen feeding fledglings, south end mangroves in November, 1969.
White-breasted Wood-Swallow.—About 10 seen.
Little Crow*.—14 at camp garbage tip, May, 1970.

FROGS

Cyclorana cultripes

On April 17, 1965, following heavy rains which flooded the claypans on the southern end of the island, I collected 30 specimens of a frog which proved to be juveniles of this species. Though present in great numbers at that time, it has not been found on any other of my visits. This is one of the common arid-zone frogs on the mainland (Main, 1965).

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EXCURSIONS

YUNDURUP DELTA ISLANDS

Since November 1967 members of the Western Australian Naturalists' Club have been making observations on the fauna and flora on the islands of the Murray River delta at Yundurup, mainly on Culeenup (or Mill) Island. During the weekend of April 25-27, 1969 an organized Club excursion to the area was held, under the leadership of the President, Mr. D. R. Reid. A similar excursion was conducted a year later, April 10-14, 1970. On both occasions Mr. and Mrs. John Oldham made available their cottage at Lot 26, Culeenup I., as headquarters of the expeditions.

So promising was the area regarded for sustained natural history observations, in a wide variety of fields, that it was decided to initiate moves for a permanent field station there. Accordingly, after preliminary inquiries to the Surveyor-General, Mr. John Morgan, the President made a formal request on June 9, 1969 to the Lands and Surveys Department for a grant of land for the purpose. This was favourably entertained and after further correspondence, detailing the Club's intentions, the Governor in Council approved that Lots 8 and 9 on Culeenup Island, being Reserve No. 5613, and totalling one acre in area, "should vest in and be held by the Western Australian Naturalists' Club in trust for the purpose of a Field Station" (vide *Government Gazette,* May 8, 1970).

There are nine river channels and eight islands in the delta of the Murray River. Three of the islands have been examined by Club parties—Culeenup, Jeegarnyeejip (or Reserve) and Meeyip Is., with most attention being paid to the first-named. Mr D. R. Reid specialised in the geomorphology of the area, Miss E. Kniep organized the botanical collections and Dr. D. L. Serventy collated the bird observations of the various parties. Most of the visits have been made in the summer and autumn, with a minimum in the winter and spring; no visits at all were made in the important months of September and October when there is a general flowering of the native flora. The following report is a consolidated account of the results obtained to date, both of the organized and individual visits to the delta, and may be regarded as the first report of the Club's field station.

GEOMORPHOLOGY

Report by D. R. Reid: Yundurup is the only typical delta on the coast, and is really a double delta, for both the Serpentine and Murray Rivers debouch into Peel Inlet close together. The delta resulted from an accumu-